

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 14-02-2005		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE The Zero Effect The Impact of Network-centric Warfare on Operational Planning				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) LCDR Nicholas E. Andrews II, USN Paper Advisor (if Any): CDR Frank Baker, USN				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement A: Approved for public release; Distribution is unlimited.					
13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
14. ABSTRACT The strength of a networked force is its ability to collect, understand, disseminate, and act on information faster than the opponent; allowing plans to be adjusted in real time and creating an agile force with which the slower enemy would have a hard time competing. Implicit in this is one critical assumption: the opposing forces will act in some way and friendly assets will observe this act. Quicker reaction to the enemy, enabled by the networking of combat units and shared awareness, represents a decisive advantage...once the enemy is engaged. While this is obviously a goal worth pursuing, it is more applicable at the tactical level of war than at the operational level. The ultimate goal of network-centric warfare should be the ability to <i>modify</i> an already established operational plan in near real-time, not to construct one. Parallel planning and execution is inherently reactive and is of great use at the tactical level but should not be used as the framework to plan at the operational level.					
15. SUBJECT TERMS Network-centric warfare, NCW, Operational Planning, Dynamic Planning, Operational Tempo					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 21	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

**NAVAL WAR COLLEGE
Newport, RI**

**THE ZERO EFFECT: THE IMPACT OF NETWORK-CENTRIC WARFARE
ON OPERATIONAL PLANNING**

By

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract

Proponents of NCW see one of the benefits as a merging of the planning and execution processes. This aspect of NCW does not take into account the deliberate planning of operations prior to the execution of orders. As a planning model, it is reactionary in nature.

The strength of a networked force is its ability to collect, understand, disseminate, and act on information faster than the opponent; allowing plans to be adjusted in real time and creating an agile force with which the slower enemy would have a hard time competing. Implicit in this is one critical assumption: the opposing forces will act in some way and friendly assets will observe this act. Quicker reaction to the enemy, enabled by the networking of combat units and shared awareness, represents a decisive advantage...once the enemy is engaged. While this is obviously a goal worth pursuing, it is more applicable at the tactical level of war than at the operational level. The ultimate goal of network-centric warfare should be the ability to *modify* an already established operational plan in near real-time, not to construct one. Parallel planning and execution is inherently reactive and is of great use at the tactical level but should not be used as the framework to plan at the operational level.

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INTRODUCTION

Network-centric warfare (NCW), although a widely recognized term in the military, is not as yet a completely mature concept. Because it is still developing, it is defined slightly differently according to which article or book happens to be defining it. However, the main principles as described in the book *Network Centric Warfare: Developing and Leveraging Information Superiority* by David S. Alberts, et al. have remained relatively constant and seem to be widely accepted as part of the construct that is network-centric warfare. NCW, as a concept, is characterized by shared battlespace awareness creating a flattened command structure allowing a greater speed of command and self-synchronization of forces. This, in turn, is posited to lead to a merging of the planning and execution processes creating an extremely high operational tempo. The outcome of which is the massing of effects from geographically dispersed forces that will overwhelm an adversary's ability to react.¹ "Combat units with accurate situational awareness would not need to stop and decide what to do next, but would continue to act towards the planned objective, while the enemy would effectively be overwhelmed by the speed of combat developments."²

Proponents of this paradigm envision a massively networked force linked with pervasive surveillance and reconnaissance assets; virtually eliminating the fog of war and allowing all echelons of command near real-time access to a common operating picture.

A large amount of the evidence marshaled to support this view comes from the study of

¹ David S. Alberts, John L. Garstka, and Frederick P. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority* (Washington, DC: DoD C4ISR Cooperative Research Program, 1999). Here I am summarizing concepts that are set forth throughout the entire book. The most concise definition is contained on pg. 86.

² Doug Richardson, "Network-centric Warfare: Revolution of Passing Fad," *Armada International*, 28 (October/November 2004): 63.

commercial enterprises and their attempts to gain a competitive advantage in the global marketplace that has resulted from the huge technological advances of the Information Age. It is noted that successful businesses have been able to leverage information by adapting their decision-making processes to respond to the market quicker than their competition. “The ability of an enterprise to share information across functional areas can enable resource allocation decisions to be made that maximize value from an overall enterprise perspective rather than a purely functional perspective.”³

A smaller amount of supporting data is drawn from several case studies sponsored by the Pentagon's Office of Force Transformation as part of the Network Centric Operations Conceptual Framework Initiative and the two major military operations of the 21st century, OPERATION ENDURING FREEDOM and OPERATION IRAQI FREEDOM. “The theoretical superiority of network-centric warfare in conventional combat was realized with the rapid U.S.-led coalition victory over Saddam Hussein's forces in Iraq. Coalition forces brought to bear the full power of megabits and giga-bytes against regular, irregular and so-called elite forces of the Iraq military.”⁴ Skeptics point to this as inadequate and demand more real world testing and a slower approach to the transformation of the armed forces. “Probing questions about NCW were raised as early as 1998 and are echoed today by other voices who contend that substantial technology-driven changes in force structure, organization and operational art should be

³ Alberts, Garstka, and Stein, 36.

⁴ Robert K. Ackerman, “Iraq War Operations Validate Hotly Debated Theories,” Signal, 57 (July 2003): 31.

founded on more substantive evidence than can be gained from selectively sampling the scenario-unique sands of the Iraq War.”⁵

Whether history judges it to be a true revolution in military affairs or just another leap forward in battlefield communications, the networking of combat forces is here to stay. Along with it come a large number of questions that remain to be answered concerning the ultimate form of a network-centric force. It is easy to get lost in all the different technological and organizational issues. This paper focuses on only one particular aspect of the sweeping concept that is network-centric warfare. What, if any, is the impact of NCW on the operational planning process?

THESIS

Proponents of NCW see one of the benefits as a merging of the planning and execution processes. “In fact the entire loop concept for command and control is becoming outdated and needs to be replaced with a new concept of command and control—one that recognizes the need to treat different types of decisions differently and recognizes a merging of the now separate planning and execution processes (sometimes called dynamic planning).”⁶ This aspect of NCW does not take into account the deliberate planning of operations prior to the execution of orders. As a planning model, it is reactionary in nature.

The strength of a networked force is its ability to collect, understand, disseminate, and act on information faster than the opponent; allowing plans to be adjusted in real time and creating an agile force with which the slower enemy would have a hard time

⁵ Alan D. Campen, “Look Closely At Network-Centric Warfare,” Signal, 58 (January 2004): 43.

⁶ Alberts, Garstka, and Stein, 74.

competing. Implicit in this is one critical assumption: the opposing forces will act in some way and friendly assets will observe this act, “Where traditional area reconnaissance missions are flown at regular intervals as required by planners, network-centric warfare will require round-the-clock surveillance.”⁷ Quicker reaction to the enemy, enabled by the networking of combat units and shared awareness, represents a decisive advantage...once the enemy is engaged. While this is obviously a goal worth pursuing, it is more applicable at the tactical level of war than at the operational level. The ultimate goal of network-centric warfare should be the ability to *modify* an already established operational plan in near real-time, not to construct one. Parallel planning and execution is inherently reactive and is of great use at the tactical level but should not be used as the framework to plan at the operational level.

DELIBERATE PLANNING AND CRISIS ACTION PLANNING

The framework currently used to plan at the operational level can be found in the Joint Doctrine for Campaign Planning (Joint Publication 5.00-1) and it encompasses both the Deliberate Planning process and the Crisis Action Planning (CAP) process. The Combatant Commander uses the Deliberate Planning process to plan for a broad range of potential contingencies including both combat operations and Military Operations Other Than War (MOOTW). It can also include theater engagement planning designed to accomplish strategic objectives and provides a base for tackling unforeseen contingencies.⁸ The final product of the Deliberate Planning process is an operation plan (OPLAN), a functional plan (FUNCPLAN), or an operational plan in concept format

⁷ Richardson, 62.

⁸ U.S. Joint Chiefs of Staff, Joint Doctrine for Campaign Planning, Joint Publication 5-00.1 (Washington, DC: 25 January 2002), III-3.

(CONPLAN). Regardless of which form it takes, it is a formalized plan conceived and written down well prior to its anticipated execution.

An integral part of the Deliberate Planning process is the Commander's Estimate. It is "the document that clearly states the combatant commander's decision and summarizes the combatant commander's rationale for that decision."⁹ The process that produces this is designed to allow the best possible decision with imperfect or missing information. It is intelligence centric rather than information centric. Although complete and accurate intelligence is always the goal, gaps in knowledge are expected and a formal process is in place to address the assumptions that must be made to allow planning to continue.¹⁰ The considered opinions of individuals with years of experience are emphasized over incomplete and sometimes conflicting data. Several enemy courses of action are considered and friendly courses of action are developed to counter them.

"Deliberate planning is designed as a cyclic process and provides the JPEC [Joint Planning and Execution Community] with an opportunity to develop and refine plans to be used in wartime."¹¹ While immediate access to the latest data is crucial in the dynamic planning paradigm, Deliberate Planning benefits from accurate *intelligence*. Access to unanalyzed, real-time data from a massively networked force presents no decisive advantage. The enemy courses of action developed by the staff are products that highlight expected enemy actions in the future. These must be built by merging data that has been sifted from observations over a significant period of time with new data. Faster information flow would help in the dissemination of new data, but if planning is

⁹ U.S. Joint Chiefs of Staff, Joint Doctrine for Campaign Planning, III-12.

¹⁰ Ibid., III-7.

¹¹ Ibid., III-4.

significantly constrained by time the CAP process supersedes the Deliberate Planning process.

“CAP procedures are used by the JPEC to plan for and execute deployment and employment of US military forces in time sensitive situations.”¹² Although the dynamic planning paradigm posited by NCW is in stark opposition to the Deliberate Planning process, one could argue that it is perfect for the CAP process. Faster and more widespread information sharing and virtual collaboration will allow better plans to be made in less time and result in quicker response to a developing crisis. In fact, the networking of planning staffs is a great benefit to the CAP process. Better collaboration, “allows experts to integrate their perspectives to better interpret situations and problems, identify candidate actions, formulate evaluation criteria, and decide what to do.”¹³ It is important to note, however, that in this context the network is enabling superior planning, not the merging of planning and execution.

Not surprisingly, the CAP process identifies the final phase as execution. It is during this phase that the need to modify the established plan is addressed, “During the execution phase, changes to the original plan may be necessary because of tactical and intelligence considerations...”¹⁴ In other words, tactical initiative is still a valuable asset.

There are also limitations inherent in any large-scale military operation that further divorce the operational planning process from execution. The mobilization of forces to the area of operations will always be a consideration during the planning process. Especially in the case of limited war, a decision must be made about the

¹² Ibid., IV-2.

¹³ U.S. Joint Chiefs of Staff, “Joint Command and Control Functional Concept,” (Unpublished Draft v1.0, Washington, DC: 2005), 15.

¹⁴ U.S. Joint Chiefs of Staff, Joint Doctrine for Campaign Planning, IV-20.

appropriate type and number of forces to deploy. Rushing assets into an operation without considering this will lead to a haphazard build-up of combat power and may present the enemy with opportunities he would not otherwise have had. Additionally, those forces that are on a high state of alert or forward deployed may not be the best for the job. This determination must be made during the planning phase (whether time critical or not) and become a part of the execute order.

FLATTENED C2

One of the maxims of Napoleon I was, “A plan of campaign should take into consideration everything the enemy can do, and prescribe the necessary measures to counteract him. Plans of campaign may be modified *ad infinitum* according to circumstances, the genius of the commander, the character of the troops, and the topography of the theater of war.”¹⁵ Two hundred years later at the dawn of the 21st century, the problem has been restated to reflect the realities of our time, “Technology has compressed the space and time continuum, and political realities have collapsed the clear separations among the strategic, operational, and tactical levels by introducing more dynamic rules of engagement.”¹⁶

Proponents of NCW see the advent of new technology and resulting operational concepts as significantly reducing the fog and friction of war.¹⁷ This outlook portrays intermediate command echelons as unnecessary legacies of pre-Information Age forces and a hindrance to the streamlined execution of the commander’s intent, “NCW gives us

¹⁵ Conrad H. Lanza, ed., Napoleon and Modern War, Military Classics (Harrisburg: Military Service Publishing Company, 1949), 3.

¹⁶ Alberts, Garstka, and Stein, 69.

¹⁷ Ibid., 72.

the opportunity to explore the vast middle ground between the Industrial Age top-down hierarchical command and control approach and the highly decentralized model of small units assigned pieces of the problem with only their organic capabilities.”¹⁸ Put bluntly, it posits that if a command echelon provides little or no value in return for the time delay incurred, then it is unnecessary.

While this premise applies mostly to the execution phase, what is its effect on planning? Skeptics have pointed out concerns in this area, “Carried to its extreme, NCW will lead to a complete ‘tacticization’ of strategy—where strategy is defined and dominated by purely tactical considerations. Operational art—that intermediate area of study and practice between strategy and tactics—is ignored totally. There is no discussion of the effect that the netting of forces will have on the conduct of major operations and maritime campaigns. The most serious omission is the critical role that leadership plays at all levels of war.”¹⁹ There is also a benefit to intermediate level leadership during the planning process. An operational level plan can defer the specifics of execution to the intermediate level. There is a reason that the saying “make it happen” is so widespread in the military. It captures the essence of the decentralized execution of a centralized plan.

In the current system, the lower level command structures already in place are given a task and general guidelines to focus their actions. Within these guidelines, these commanders are given a free hand to execute. Historically, this is the realm of great improvisation and sparks of inspiration that can change the outcome of a conflict.

¹⁸ Ibid., 152.

¹⁹ Milan Vego, “Net-centric is not Decisive,” United States Naval Institute. Proceedings, 129 (January 2003): 53.

Conversely, it is also the area where a wonderfully conceived plan can be undone by poorly conceived execution. The difference is in the ability of the executing commander.

As defined currently, “A campaign plan translates strategic guidance into operational direction for subordinates. It provides broad concepts for operations and sustainment to achieve strategic or operational objectives.”²⁰ Given this, removing an intermediate level of command could result in several different scenarios. First, the nature of operational plans could remain the same. This would result in the necessity of lower echelons clearly understanding the commander’s intent (which we strive for anyway) and then having the ability to translate operational direction into tactical action. It is the translation into action that would suffer.

Intermediate command levels divide operational tasks assigned by the combatant commander into manageable tactical tasks for execution. These tasks are then passed on to lower level tactical units. The NCW paradigm of self-synchronization would come to the forefront once execution has begun. The intermediate command echelon, like all echelons, would monitor and provide input when necessary. Without this filter in place, a tactical unit would be required to sift through large amounts of information about what other units are doing, figure out where it fits in the plan, and then execute.

Of course, it is not likely that combatant commanders would issue these types of orders to lower level tactical units. What is more likely is that operational planning would become much more specific in its tasking. The product used by the lower level tactical units would be the same, but the operational order would change to reflect the new flatter command structure. Implicit in this is that the operational staff would have to become much larger in order to produce the required granularity.

²⁰ U.S. Joint Chiefs of Staff, Joint Doctrine for Campaign Planning, I-3.

Whether this would happen by simply co-locating the previous intermediate level commanders with the staff or determining a new staff structure, the result would be the same: a larger staff with more responsibility to produce a much more detailed plan for execution by lower echelon tactical units. In essence, you would be completely discarding the benefits of the collaboration aspect of NCW. “The collaborative C2 process improves the execution of the basic C2 process, both in terms of quality and speed, by providing the individual commander with access to the information and understandings of other commanders involved with the same mission.”²¹ Instead of flattening the command structure in an effort to achieve speed of command and dynamic planning, the exposure of the executing elements to the planning process will achieve a better, shared understanding of the commander’s intent without sacrificing de-centralized execution. It will also preserve room for intermediate level commanders to *modify* the details of the plan to their specific situation. As Dr. Milan Vego of the Naval War College puts it, “The need to increase the speed of command should never be the dominant factor in determining command structure. The number of intermediate command echelons should be limited to those needed to accomplish the assigned missions. Eliminating intermediate command echelons because technology allows a larger span of control cannot be explained in terms of sound command organization.”²²

OPERATIONAL TEMPO

According to United States Doctrine for Joint Operations, “The fundamental principle for employment of US joint forces is to take decisive action to ensure

²¹ U.S. Joint Chiefs of Staff, “Joint Command and Control Functional Concept,” 15.

²² Vego, 57.

achievement of the objectives established by the NCA [National Command Authority] while concluding operations in the shortest time possible and on terms favorable to the United States.”²³ Increased operational tempo, the ability to continually push toward your objective without allowing your enemy a pause is one of the greatest promises of NCW. “The move from a cyclic C2 process that performs planning and execution sequentially and is characterized by a period to a more continuous process that merges planning and execution, will result in our ability to generate much higher tempos.”²⁴ It is clear that an accurate situational understanding, widely shared by every participating entity will lead to faster, more economical use of force and a massing of effects that cannot be achieved without networking. However, this is a tactical level application of NCW during execution, not a by-product of merging operational planning with execution.

The networked forces (which are in theater because of the planning done by the combatant commander staff prior to mobilization) enable the monitoring of the execution phase across all echelons. “The execution of the plan can be monitored by all commanders with an understanding of the assumptions and information available when the course of action was developed and selected. This allows them to better adapt their future decisions to the dynamics of the operating environment.”²⁵ As already stated, this is the ability to *modify* an operational plan in real-time to take advantage of the actual situation presented...a tactical principle that has been used for years. NCW simply allows the networked forces to do this more efficiently.

²³ U.S. Joint Chiefs of Staff, Doctrine for Joint Operations, Joint Publication 3-0 (Washington, DC: 10 September 2001), II-1.

²⁴ Alberts, Garstka, and Stein, 176.

²⁵ U.S. Joint Chiefs of Staff, “Joint Command and Control Functional Concept,” 15.

During the operational planning process this should be viewed as a Critical Capability of our forces. The Critical Requirement for this capability is the network. The discussion about how or if this is a Critical Vulnerability is a subject for another paper. The point is that it should be addressed in the planning of the operation, and the current operational planning framework can accommodate this discussion. At the operational level the ability (or lack thereof) of the tactical forces to advantageously modify the plan and execute simultaneously should be taken into account when deciding which forces to employ.

Assuming that every conflict will look a lot like Operations ENDURING FREEDOM and IRAQI FREEDOM is a mistake. There is no way to predict what future conflicts will be like. There is no data indicating that an overall decisive advantage in wars in the Information Age will rest with the force that is better networked. It is possible (and probable) that networked forces will be decisive, but it must be debated throughout the planning process.

MOOTW

It is a distinct possibility that in the foreseeable future a large portion of the operations conducted by the United States will fall into the Military Operations Other Than War (MOOTW) category. It is worth noting that combating terrorism is defined as a type of MOOTW.²⁶ Even though a significant number will probably involve open conflict, this does not necessarily translate to force-on-force engagement. Until now, most of our NCW discussion has revolved around the asymmetric combat power developed by the netted force over traditional command and control and how that should

²⁶ U.S. Joint Chiefs of Staff, Doctrine for Joint Operations, V-6.

affect the planned employment of the force. It is assumed that the operation will, on some level, involve a force-on-force engagement, and the arguments do not easily extrapolate to encompass other types of MOOTW. Since operational planning involves both war and MOOTW, the impact of dynamic planning upon these operations is important.

Any planning must take into account the extent to which other agencies (governmental and non-governmental) participating in the effort are plugged in. “Inherent in MOOTW is the need for the military to work with other agencies of the USG as well as other nations’ governments.”²⁷ While it is still a possibility that different agencies within the U.S. government will be able to fully incorporate networked operations in their organizational structure, they do not all utilize the same planning processes. It is in this area that the concept of operational dynamic planning will most likely apply.

However, the merging of planning and execution in this case is not in pursuit of higher operational tempo and a decisive military advantage. It is an attempt to integrate the many disparate entities involved in the effort on our side of the problem. Current joint doctrine recognizes this: “Each type of MOOTW can be unique. There is no single C2 option that works best for all such operations. JFCs and their subordinates should be flexible in modifying standard arrangements to meet the specific requirements of each situation and promote unity of effort.”²⁸

The integration of different agencies has been and will continue to be a particular challenge for combatant commanders during MOOTW. Since most of the discussion

²⁷ Ibid., V-4.

²⁸ Ibid., V-4.

about NCW is geared toward combat operations, the arguments concerning the desired merge between planning and execution do not readily apply here. Although dynamic planning enabled by a network will be a definite advantage in MOOTW situations, it is not a transformation of the operational planning process. It is a process that has been brought about by the need to integrate the heretofore separate agency planning processes.

Improved commonality in the planning processes among involved agencies will be a fallout of better networking. This will allow more and more collaboration and foresight in responding to events. Eventually, networked agencies should actually allow better planning before execution across a broader range of MOOTW contingencies, minimizing the need for dynamic planning. “The point is that NCW gives us an opportunity to increase speed of command when it is appropriate; it does not force us to do so when it is not.”²⁹

RECOMMENDATIONS

The networking of combat forces is inevitable. As the transfer of large amounts of data via wireless means becomes more and more prevalent and the equipment needed to accomplish it becomes smaller and less expensive, the armed forces will naturally evolve to include this capability in their units. The challenge is the creation of organizational principles and methods of execution that will use these new capabilities to their greatest effect. Here we must tread carefully, “The fact that the theater commander in Operation Enduring Freedom directed employment of diverse and netted forces from his main headquarters in Tampa, Florida, thousands of miles away, is not an example of the sound application of operational art. The netting of forces was used to further

²⁹ Alberts, Garstka, and Stein, 13.

centralize decision making at all levels. Commander, Central Command, not only observed but actually interfered in purely tactical decisions and actions. He did not delegate authority by establishing an intermediate level of command close to the combat area.”³⁰

Network-centric warfare, at the operational level is not a wholesale transformation of the way we plan campaigns. There is not enough evidence concerning the future of military conflicts to support the merging of planning and execution. Nor is there overwhelming proof that we should plan on using network-centric tactics in all conflicts. While recent operations have started to reveal the promise of networked combat units, many questions remain as to how best to employ them against different threats. As always, that should be driven by the best means to achieve the objective.

Our focus should be more about how to use new capabilities to improve and streamline our existing framework and less about sweeping transformation of operational concepts. In fact, networked planning borders on a fait accompli. It is a given that any major planning endeavor will involve geographically dispersed participants. The existing information infrastructure supports virtual collaboration allowing the planning process to be much more of a collaborative effort. As these capabilities are extended to smaller and smaller units, it will enable even greater resources to be brought to the planning table and allow all units a better understanding of the situation. However, it does not mean that pervasive access along the entire chain of command should necessarily lead to planning while executing. Here the concerns expressed by many about the pitfalls of operational tempo, speed of command, and the wide-open doorways to micromanagement are well founded.

³⁰ Vego, 57.

Planning and execution of major military operations should be kept separate. The issues that are most discussed concerning NCW (the linking of shooters into virtual units, vulnerability of wireless communications to jamming, sensor to shooter capability, etc...) concern the execution of operational plans at the tactical level. Additionally, as planning among the various agencies becomes more common, the need for dynamic planning to support inter-agency operations will diminish. The planning process that is already in place in the joint military arena is robust enough to assimilate the new capabilities a networked force brings to the table.

CONCLUSION

The Joint Doctrine for Campaign Planning puts it best, “Because theater-level campaign planning is mostly art, it is inextricably linked with operational art, most notably in the design of the operational concept for the campaign. This is primarily an intellectual exercise based on experience and judgment.”³¹

New technology rarely turns out to have the same kind of impact that is expected when it is first introduced. Even though dynamic planning has served some commercial entities well, we should proceed carefully in the military arena. In this, even the staunchest NCW advocates agree, “In fact, network-centric concepts do not automatically translate into effective organizations. This is true whether or not one is trying to apply this concept in the commercial sector or to DoD.”³²

Operational planning concerns much more than space, time, force and how to best use them to your advantage. At its root, planning for armed conflict is about the

³¹ U.S. Joint Chiefs of Staff, Joint Doctrine for Campaign Planning, viii.

³² Alberts, Garstka, and Stein, 11.

estimation of your enemy's capabilities and his will to fight. It will always take learned individuals who invest long hours and serious thought to conceive the best possible course of action. "In short, absolute, so called mathematical, factors never find a firm basis in military calculations. From the very start there is an interplay of possibilities, probabilities, good luck and bad that weaves its way throughout the length and breadth of the tapestry. In the whole range of human activities, war most closely resembles a game of cards."³³

³³ Carl von Clausewitz, *On War*, Edited and translated by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976) 86.

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